

Remarks

The Applicants acknowledge the prior election of Claims 1 – 5 for prosecution. Claims 6 – 12 have accordingly been cancelled. The Applicants specifically reserve the right to file one or more divisional applications directed to the subject matter of Claims 6 – 12.

The Applicants acknowledge the Examiner's helpful comments concerning the Applicants' claim for priority and the note that a certified copy of the Japanese foreign priority document has not been filed.

The Applicants respectfully submit that this Application is a §371 application and certified copies of the Japanese priority documents by the Applicants are not necessary, especially in view of the fact that WIPO has transmitted those priority documents. The Applicants enclose a copy of Form PCT/IB/304 that confirms such transmittal. Confirmation of acknowledgment of the receipt of the certified copies is respectfully requested.

The Applicants have amended the Abstract in accordance with the Examiner's helpful suggestion and revised the Title in view of the elected product claims.

Turning now to the merits, the Applicants acknowledge the rejection of Claims 1 and 5/1 under 35 U.S.C. §102 based on JP '112. The Applicants respectfully submit that JP '112 is not prior art. The Applicants invite the Examiner's attention to the date of publication of JP '112, which was February 20, 2001. This date is after the filing dates of all of the Applicants' six priority documents which fully support Claims 1 – 5. This means that JP '112 is not effective prior art. The Applicants enclose, for the Examiner's convenience, English translations of appropriate portions of the Applicants' Japanese priority documents to demonstrate that the claimed subject matter is fully supported by those priority documents. Inasmuch as the

Applicants have demonstrated that JP '112 is not prior art, the Applicants respectfully request that the rejection of Claims 1 and 5/1 based on §102 and JP '112 be withdrawn.

The Applicants acknowledge the rejection of Claims 2 and 5/2 under 35 U.S.C. §102 and/or §103 based on JP '112. The Applicants respectfully request withdrawal of that rejection since JP '112 is not prior art.

The Applicants acknowledge the rejection of Claims 3, 4, 5/3 and 5/4 under 35 U.S.C. §102 and/or §103 based on JP '112 in view of AAPA. The Applicants respectfully request withdrawal of that rejection based on the fact that JP '112 is not prior art.

The Applicants acknowledge the rejection of Claims 1 – 5 under 35 U.S.C. §103 over the hypothetical combination of AAPA with Kojima. The Applicants respectfully submit that, even if the hypothetical combination were to be made, the resulting structure would still fail to teach or suggest the invention as recited in Claims 1 – 5.

The Applicants note with appreciation the Examiner's frank acknowledgment that Kojima fails to teach an outer layer being formed integrally with a plurality of previously sintered cylindrical formed members and specifically teaching the length of the sleeve. The Applicants fully agree. However, Kojima provides teachings or suggestions that would lead one of ordinary skill in the art in a different direction from the invention as recited in Claims 1 – 5 even if hypothetically combined with AAPA.

Specifically, Kojima teaches that an adhesive layer is introduced between the ring 12 and the sleeve 14. The beginnings of these important teachings in Kojima may be found at Column 3, line 22. The teachings concerning such adhesives flow throughout the balance of Column 3 and substantially all of Column 4. Selected teachings of Kojima concerning the presence and advantages of such an adhesive are set forth below:

The ring 12 and the sleeve 14 thus bonded are firmly joined together to such an extent that they can bear torques 2 to 10 times as large as the torque which the prior art roll can bear. Column 3, lines 34 – 37.

The outer peripheral surface of the sleeve 14 thus enlarged compresses the adhesive layer to develop a compressive strength therein, which is, in turn, exerted on the inner surface 12a of the ring 12. Column 3, lines 43 – 46.

In the roll E described above, the ring 12 is firmly bonded to the sleeve, not only by the bonding force of the adhesive layer 16, but also by the force transmitted from the sleeve through the adhesive layer 16. Column 3, lines 47 – 50.

In the above embodiment, however, the adhesive layer by itself ensures the sheer strength of about ...Column 3, lines 65 – 66.

In addition, the provision of the adhesive layer increases the frictional coefficient to about 0.2 to 0.3. Column 4, lines 2 – 4.

A portion of the adhesive layer interposed between the ring 22 and the sleeve 14 will be referred to as a first layer while that portion of the adhesive layer interposed between the collar 24 and the sleeve 14 will be referred to as a second layer 28. Column 4, lines 31 – 36.

...a ring 38 and a collar 40 are disposed around the outer peripheral surface of the sleeve 36 and adhesively secured thereto by first and second compressed adhesive layers 42 and 44 interposed therebetween. Column 4, lines 53 – 57.

Such multiple teachings, further combined with all of the independent claims of Kojima, make it plain that the presence of an adhesive layer is an important aspect of the Kojima invention and the Kojima disclosure.

Kojima accounts for the possibility that the adhesive layer may be subjected to fatigue failure and might be peeled off, as set forth in Column 3, beginning at line 53. However, it is clear to those of ordinary skill in the art that this is an accidental situation, not an intended situation. There can be no doubt from the teachings of Kojima that they fully intend to have the adhesive layer present in all embodiments of the invention.

The Applicants therefore respectfully submit that, even if one of ordinary skill in the art were to hypothetically combine the “plurality of previously sintered cylindrical formed members” and “making the length of the sleeve from 520 to 6,000 mm” as taught by AAPA with Kojima, the resulting composite cemented carbide roll would still contain the important adhesive layer of Kojima. This is not what the Applicants claim. Reference to the Applicants’ independent Claims 1 and 3 specifically recite “an inner layer made of a steel member formed on the inner surface of said outer layer.” What this means is that the inner surface of the cemented carbide outer layer lies directly against the outer surface of the steel member. There is no intervening adhesive layer and no such adhesive layer is needed. The Applicants preferably cause diffusion welding between the outer surface of the steel member and the inner surface of the cemented carbide outer layer. Hence, in view of this structure claimed by the Applicants, it becomes apparent that hypothetically combining AAPA with Kojima still results in a structure that is different from the structure recited in Claims 1 – 5. The Applicants accordingly respectfully request withdrawal of the rejection of Claims 1 – 5 based on the hypothetical combination of AAPA with Kojima.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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PATENT COOPERATION TREATY



PCT

From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)


To:

OCHIAI, Kenichiro
c/o TOKYO HEAD OFFICE, KAWASAKI
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Date of mailing (day/month/year) 03 August 2001 (03.08.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 01F00031	
International application No. PCT/JP01/04043	International filing date (day/month/year) 15 May 2001 (15.05.01)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 16 May 2000 (16.05.00)
Applicant KAWASAKI STEEL CORPORATION et al	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
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<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
16 May 2000 (16.05.00)	2000-142914	JP	29 June 2001 (29.06.01)
16 May 2000 (16.05.00)	2000-142915	JP	29 June 2001 (29.06.01)
05 Febr 2001 (05.02.01)	2001-028788	JP	29 June 2001 (29.06.01)
05 Febr 2001 (05.02.01)	2001-028789	JP	29 June 2001 (29.06.01)
05 Febr 2001 (05.02.01)	2001-028790	JP	29 June 2001 (29.06.01)
05 Febr 2001 (05.02.01)	2001-028791	JP	29 June 2001 (29.06.01)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Magda BOUACHA  Telephone No. (41-22) 338.83.38
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Partial translation of Priority documents

Application No. JP2001-028790
(Publication No. JP2002-224718)

Claim 1

A composite cemented carbide roll having a sleeve comprising a cemented carbide outer layer formed integrally from a plurality of previously sintered cylindrical formed members and an inner layer made of a steel member formed on the inner surface of said outer layer, fixed through engagement with a steel axial core; wherein said sleeve has a length within a range of from 520 to 6,000 mm.

Claim 2

A composite cemented carbide roll according to claim 1, wherein the number of said formed members is within a range of from 5 to 30.

Application No. JP2001-028791
(Publication No. JP2002-224719)

Claim 1

A composite cemented carbide roll having a sleeve comprising a cemented carbide outer layer formed integrally from a plurality of previously sintered cylindrical formed members and an inner layer made of a steel member formed on the inner surface of said outer layer, fixed through engagement with a steel axial core; wherein said sleeve has a ratio S_o/S_i of the sectional area S_o of said outer layer in the cross-section perpendicular to the rotation axis to the sectional area S_i of said inner layer within a range of from 0.3 to 20.

Claim 2

A composite cemented carbide roll according to claim 3, wherein the ratio S_o/S_i of the sectional area S_o of said outer layer to the sectional area S_i of said inner layer is within a range of from 0.8 to 15.

Claim 3

A composite cemented carbide roll according to any one of claims 1 to 4, wherein said roll has an outside diameter within a range of from 150 to 800 mm, and is used as a work roll for a cold tandem mill.